NETWORK-BASED SALES SYSTEM USING BAR CODES AND OPERATING METHOD OF THE SAME

Background of the Invention

5 ## 1. Field of the Invention

The present invention relates to a network-based sales system. More particularly, the present invention relates to a network-based sales system for defining bar codes of products

10 and thereby managing distribution of the products.

2. Description of the Related Art

Improvement of a product distributing system has been promoted for selling a large

15 number of various products. To make the product distribution effective, each of the products is given an article number and a bar code corresponding to the article number. The bar code is printed on a package box or a slip of the

20 product and used for managing the distribution of the product.

The number of the article numbers and the corresponding bar codes are increasing because of the increasing variety of products. The increase

25 of the variety of products arises from the diversification of user need. As for a personal computer, for example, a capacity of an

installation memory, a capacity of a hard disc,
an installation OS and an application are
variously combined. Thousands of combinations are
theoretically possible in only one machine.

5   The increase of the number of the article
numbers and the corresponding bar codes imposes a
heavy load on an EDP (Electronic Data Processing)
system of the makers and the merchants. The heavy
load forces the makers and the merchants to
10   reduce the number of products. The reduction
causes loss of sales chances for the makers and
the merchants, and also causes inconvenience of
narrower product selection ranges for the users.

       Also, the increase of the number should be
15   suppressed, because the number of assigned bar
codes is limited for a maker and a merchant. The
bar codes are definitely assigned to each of the
makers or the merchants. If enormous bar codes
are given in advance to the products, the bar
20   code given to a product having no order may be in
vain.

       It is desirable that the bar codes are
effectively used by the makers and the merchants.

25   **Summary of the Invention**
       Therefore, the object of the present
invention is to provide a network-based sales

system in which the bar codes are effectively used.

In order to achieve an aspect of the present invention, a network-based sales system is composed of a merchant computer, a defining unit, and a distribution managing computer. The merchant computer sends an order of a product. The defining unit defines a bar code of the product in response to the order, and notifies the distribution managing computer of the bar code. The distribution managing computer manages distribution of the product based on the bar code.

In order to achieve another aspect of the present invention, a network-based sales system is composed of a merchant computer, a defining unit, and a production managing computer. The merchant computer sends an order of a product. The defining unit defines a bar code of the product in response to the order, and notifies the production managing computer of the bar code.

In order to achieve still another aspect of the present invention, a network-based sales system is composed of a merchant computer, a defining unit, and an EDP system. The merchant computer sends an order of a product. The defining unit defines a bar code of the product in response to the order, and notifies the EDP

system of the bar code. The EDP system manages stock of a merchant based on the bar code.

In order to achieve still another aspect of the present invention, a network-based sales system is composed of a merchant computer sending an order of a product, a defining unit; a formal product master database to which registered bar codes for formally-registered products are registered. The defining unit accesses the formal product master database in response to the order to see if a product bar code for the product is registered as one of the registered bar codes. The defining unit defines the product bar code of the product to register the product bar code into the formal product master database as one of the registered bar codes when the product bar code for the product is not registered as one of the registered bar codes.

The network-based sales system may be further composed of a distribution managing computer. In this case, the defining unit notifies the distribution managing computer of the product bar code, and the distribution managing computer manages distribution of the product based on the product bar code.

The network-based sales system may be further composed of a production managing

computer. In this case, the defining unit
notifies the production managing computer of the
production bar code, and the production managing
computer manages production of the product based
5 on the product bar code.

The network-based sales system may be
further composed of an EDP system. In this case,
the defining notifies the EDP system of the
product bar code, and the EDP system manages
10 stock of a merchant based on the product bar code.

It is desirable that the network-based
sales system is further composed of a tentative
product master database having tentative product
data concerning tentatively-registered products.
15 In this case, the defining unit extracts formal
product data concerning the product from the
tentative product master database to register the
formal product data to the formal product master
database when the product is registered as one of
20 the tentatively-registered products.

In this case, the tentative product data
desirably includes prices of the tentatively-
registered products. In this case, the formal
product data includes a price of the product.
25 Also, the network-based sales system may be
further composed of a distribution managing
computer. In this case, the defining unit

notifies the distribution managing computer of
the product bar code and the formal product data,
and the distribution managing computer manages
distribution of the product based on the product
5   bar code and the formal product data.

Also, the network-based sales system may be
further composed of a production managing
computer. In this case, the defining unit
notifies the production managing computer of the
10 production bar code and the formal product data,
and the production managing computer manages
production of the product based on the product
bar code and the formal product data.

Also, the network-based sales system may be
15 further composed of an EDP system. In this case,
the defining notifies the EDP system of the
product bar code and the formal product data, and
the EDP system manages stock of a merchant based
on the product bar code and the formal product
20 data.

In order to achieve still another aspect of
the present invention, a network-based bar code
defining system is composed of an order receiving
unit receiving an order of a product through a
25 computer network and a defining unit defining a
bar code of the product in response to the order.

In order to achieve still another aspect of

the present invention, a network-based sales
method is composed of:

sending an order of a product through a
computer network;

5   defining a bar code of the product in
response to the order; and

managing distribution of the product based
on the bar code.

In order to achieve still another aspect of
10 the present invention, a network-based sales
method is composed of:

sending an order of a product through a
computer network;

defining a bar code of the product in
15 response to the order; and

managing production of the product based on
the bar code.

In order to achieve still another aspect of
the present invention, a network-based sales
20 method is composed of:

sending an order of a product through a
computer network;

defining a bar code of the product in
response to the order; and

25   managing stock of a merchant based on the
bar code.

In order to achieve still another aspect of

the present invention, a network-based sales
method is composed of:

    providing a formal product master database
to which registered bar codes for formally-
5   registered products are registered;

    sending an order of a product;

    accessing the formal product master
database in response to the order to see if a
product bar code for the product is registered as
10   one of the registered bar codes;

    defining the product bar code of the
product to register the product bar code into the
formal product master database as one of the
registered bar codes when the product bar code
15   for the product is not registered as one of the
registered bar codes.

    In order to achieve still another aspect of
the present invention, a network-based method of
defining a bar code of a product is composed of:
20   receiving an order of a product through a
computer network;

    defining a bar code of the product in
response to the order.

25   **Brief Description of the Drawings**
    Fig. 1 shows a configuration of a network-
based sales system according to an embodiment of

the present invention; and

Fig. 2 shows a process of operating the network-based sales system.

5 **Description of the Preferred Embodiments**

With reference to Fig. 1, a network-based sales system according to the present invention includes a computer network 1, a merchant computer 2, a production managing computer 3, a

10 distribution managing computer 4, a product managing computer 5, a bar code defining computer 6, a sales supporting computer 7, and an EDP system 8.

The merchant computer 2 is provided for

15 operation by a merchant A. The merchant computer 2 sends an order request of a product in accordance with the purchaser's willing.

The production managing computer 3 is provided for operation by a manufacturing

20 department B. The production managing computer 3 manages the manufacture of the products.

The distribution managing computer 4 is provided for operation by a distribution department C. The distribution managing computer

25 4 manages the distribution of the products.

The product managing computer 5 is provided for operation by a product managing department D.

The product managing computer 5 includes a tentative product master database 5a and a formal product master database 5b. Product data such as article numbers and prices of the products are

5 registered into the tentative product master database 5a. The formal product master database 5b is produced based on the tentative product master database 5a as mentioned below.

The bar code defining computer 6 is

10 provided for operation by the product managing department D. The bar code defining computer 6 respectively defines bar codes for the article numbers. The bar codes respectively correspond to the article numbers. The defined bar codes are

15 registered into the formal product master database 5b.

The sales supporting computer 7 is shared by the merchant A and the product managing department D. The sales supporting computer 7

20 supports an order reception management and an appointed delivery answer of the product for the order from the merchant computer 2.

The EDP system 8 is provided for operation by the merchant A. The EDP system 8 manages the

25 stock of the merchant A.

Fig. 2 shows the operation of the network-based sales system.

Various data concerning the products are initially prepared for the production managing computer 3, the distribution managing computer 4, and the product managing computer 5 (Step SB1,

5 SC1, and SD1). Manufacture data needed for manufacturing the products are provided for the production managing computer 3, such as article numbers of the products and preparation numbers of parts included in the products (Step SB1).

10 Also, distribution data needed for distribution of the products are provided for the distribution managing computer 4, such as the article numbers and distribution numbers of the products (Step SC1). Furthermore, the tentative product master

15 database 5a is provided for the product managing computer 5 (Step SD1). As mentioned above, the product master database 5a records the product data including the article numbers and the prices of the products.

20 At the steps SB1, SC1, and SD1, no bar code is initially registered into the production managing computer 3, the distribution managing computer 4, and the product managing computer 5. The formal product master database 5b initially

25 records no bar code.

The merchant computer 2 sends an order request to the sales supporting computer 7 (Step

SA1).   The merchant A inputs to the merchant
computer 2 an article number of a product that
the merchant A is willing to order.   The order
request includes the article number of the
5   ordered product.

The sales supporting computer 7 accesses
the product master database 5a to see if a bar
code corresponding to the article number is
already registered into the formal product master
10   database 5b (Step SD2).   If the code corresponding
to the article number is not yet defined, the bar
code is not registered.

When the corresponding bar code 13 is not
yet registered, the sales supporting computer 7
15   accesses the bar code defining computer 6 to send
the article number.   The bar code defining
computer 6 defines a new bar code for the article
number (Step SD3).   The bar code defining computer
6 sends the article number and the defined bar
20   code to the product managing computer 5.   The
product managing computer 5 queries the tentative
product master database 5a based on the article
number.   When the article number is registered
into the tentative product master database 5a,
25   the product managing computer 5 extracts product
data concerning the product having the article
number from the tentative product master database

5a. The product managing computer 5 registers the article number, the defined bar code and the extracted product data into the formal produce master database 5b (Step SD4).

5   The registered article number, bar code, and product data are sent to the production managing computer 3, the distribution managing computer 4, the sales supporting computer 7. The registered article number, bar code, and product

10   data are also registered into each of the production managing computer 3, the distribution managing computer 4, the sales supporting computer 7 (Step SB2, SC2, and SD5). The registration process for the product is finished.

15   After the registration process, the sales supporting computer 7 sends a registration report informing the registration completion to the merchant computer 2. The merchant A notices that a regular order of the product can be proceeded

20   (Step SD6). The merchant computer 2 sends a regular order request of the product (Step SA2).

        At the Step SD2, when the bar code corresponding to the article number included the order request is already registered into the

25   formal product master database 5b, the above-mentioned Steps SD3, SD4, SD5, SD6, SB2, and SC2 are skipped. In this case, the order request sent

by the merchant computer 2 is regarded as the
regular order request (Step SA2).

The production managing computer 3 receives
the regular order request from the merchant
5   computer 2. The manufacturing department B
manufactures the product in accordance with the
regular order request (Step SB3). The bar code
registered in the production managing computer 3
is used for the production management executed by
10 the production managing computer 3.

The manufactured product is shipped after
the bar code of the product is printed on a
package box or a slip affixed on a package box
(Step SB4). The distribution department C
15 distributes the product in accordance with the
printed bar code (Step SC3). The distribution
managing computer 4 manages the distribution of
the product with the printed bar code and also
the bar code registered into the distribution
20 managing computer 4 itself.

The merchant A delivers the product at a
moderate timing (Step SAD2). The delivery is
managed by the EDP system 8. The merchant A is
provided with the product data including the
25 article number, price, and the defined bar code
of the product and the product data is registered
into the EDP system 8 (Step SAD1). The EDP system

8 executes stock management of the merchant A
with the registered product data.

The above-mentioned operation realizes the
effective use of the limited number of bar codes.
5   That enables the usage of the EDP system to be
actually effective for the makers and the
merchants.

In the above-mentioned operation, the
product data including the prices and the article
10 numbers are preliminarily prepared for the
tentative product master database 5a.   The
preliminary preparation of those data requires
the large number of steps.   In order to reduce the
number of such steps, it is desirable to reduce
15 the preliminary preparation to the minimum.   The
registering method is effective for individually
registering the article data after the reception
of the order request.   Such a registering method
has a disadvantage that it takes a certain time
20 to actually order the article after the reception
of the order request.   However, the advantage of
using the conventional EDP system and treating
the various kinds of articles offsets and
outweighs the disadvantage.

25   Although the invention has been described
in its preferred form with a certain degree of
particularity, it is understood that the present

disclosure of the preferred form has been changed
in the details of construction and the
combination and arrangement of parts may be
resorted to without departing from the spirit and
5   the scope of the invention as hereinafter claimed.